

Cold Bath

The subject of this Specification is a
Cold Bath, which is very useful with swimming, for
it is at the cold stage of intermission, as well as during the heat stage,
that I find

N^o. 19. that during the former, when
the body is very cold, it causes a great number of vessels to dilate
and contract, and when it is cold that the blood vessels
are contracted, and that the ~~heat~~ of the body
is 106.68 & 108.20, and ~~the~~ *Cold Bath* is made
in water of moderate temperature, it expands the vessels
and it causes the heat to be more easily
dispersed, and that when operated by long practice it becomes
a power and most valuable difference of the human
body, and it should be stored with the human body
and not in another place, and the amount given the
bath should be such that it has effect.

It is well known that the value of the bath
depends upon the temperature, and the Cold Bath is I think
the best for man.

It appears to be a loss of the human body

A Thesis.

Upon the use of the Cold Bath previous to the Cold Stage
of Intermittents & during the Hot Stage of Fevers

before our hands action, or produce a diminution, & a
real change as before. The object of this Dissertation, is to prove
that the Cold Bath may be employed with advantage previous to
the cold Stage of Intermittents, as well as during the Hot Stage
of Fevers. It is obvious to every one that during the former stage,
as there is every appearance of feeble, & reduced action; that the rea-
sons are either languid or suspended, that the vital functions are
irregular & impaired, and that the faculties of the mind are
deprived of their accustomed energy. How the cause opera-
tively produce this effect I will not enquire until satisfied that of dis-
posed it would advance the human but little in relieving distemp-
rality; and that Nature operates by laws peculiar to herself, con-
sidering the species and constitutional differences of her productions
in the greatest obscurity. To us it will be the humble task to
trace & notice these changes, and this we cannot solve these diffi-
culties, we can at least obviate their effects.

This will consist in exciting the actions of the system previous
to the paroxysm, and the Cold Bath is I think subser-
vient to this purpose.

It appears to be a law of the Animal Economy that

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causes

whether suspends action or produces a diminution of it, effects such changes as disposes the system to take on a train of nervous & action operations. What this consists in has been supposed an increase of Irritability, which Haller supposed to reside in every muscular fibre, to be the principle on which stimuli acted, and which as it existed in a greater or less degree, produced actions vigorous or feeble.

Upon going into a Bath suppose 48° Fahrenheit the action of the capillary vessels is diminished or ceases for a time, & the bloodvessels are reduced in their actions. Hence the skin becomes pale, and contracted, and loses its heat, hence a torpor and listlessness ensues, and hence results a diminution of sensibility, which is materially influenced by the circulation. But on emerging from it, the vessels in consequence of the change undergone, and the temperature of the atmosphere, increase in their action. the skin becomes more fluid - a glow is felt over the body - the spirits are more animated - the eyes more expressive &c. all indicating a new & more vigorous circulation. The same ^{fact} armed may be illustrated in various ways. Thus by immersing both arms in water. one into a vessel containing

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of the temperature ^{of} ~~longer~~ ^{than} that of the body, the other into another. 43° Fahrenheit, we will perceive a material difference when placed into water of a higher temperature than the body. In the one immersed in the cold water we find the action more increased something like an effluvium to be diffused over it and pain not infrequently is a consequence whereas in the other the effects are by no means equal in degree. Thus also the hands when benumbed with cold are excited by the application of heat to ^{when} accompanied with a sense of distension, heat & every appearance of increased action greater than would be produced by heat simply without the previous exposure to cold. And from this results chilblains which is nothing more than local inflammation.

Thus also when a limb is exposed so as to be frozen, the most cautious application of heat is necessary to restore it to its healthy temperature.

The preceding principles receive weight from the authority of Sydenham. When reaction is moderate he says the effects are salutary to the system but when the degree of heat which succeeds to cold is great then we observe inflammatory complaints.

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to ensue. Thus warm weather succeeding a sudden frost produces fluencies, quinsies and other inflammatory complaints, whatever may be the general constitution of the year.

These effects may be extended further than is commonly imagined. They are applicable to explain the phenomena of the vegetable kingdom. Thus vegetation is more rapid in the Spring than at any other season. thus the sap ascends more rapidly in the morning than at noon, more so when a warm day succeeds a cold one.

These facts are incontestable in my opinion, and widely pointing out that by the agency of cold (applied in the manner mentioned,) something is accumulated in the animal and vegetable systems by which they are disposed to be excited into greater activity upon stimuli being subsequently applied.

But it may happen that from the violence of the Remote causes of Intermittent Fevers or from the actions of the system being linked together by morbid affection, that the reaction which succeeds from the bath, is not sufficiently powerful to disperse them and an ague ensues. This does not invalidate the importance of the remedy, for it is not possible that one can be suited to every urgency, that will not have its salutary properties baffled.

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occasionally by the more steady actions of disease. It will however have
importance even in this state. It will under the operation of Stimulants
unvary to its effect more certain & active as was exemplified in the fol-
lowing case which I witnessed under the care of a medical friend.

A patient who had been subject to attacks of Intermittent
fever applied which the usual remedies did not succeed in recovery
applied to my friend as stated. Finding his constitution not too
much debilitated for the employment of this remedy it was ad-
ministered before the expected paroxysm but was not equal to the ex-
pectation formed of it. Pursuing however the same steps previous
to the next, it was now thought proper during the reaction of the
system to employ some of those remedies which had failed before
the preparatory measure had been employed. They were now found
successful & the patient by suffering this practice to be continued
two or three times has had no return.

Dr. Physick has politely favoured me with the history of a
case very analogous to the one I have mentioned. which was
uncommunicated to him by the patient. He had long been af-
flicted with Intermittent fever for which a variety of remedies
were employed without success. Despairing of a cure he was at

both decided to plunge in very cold water before he expected the fit. He accordingly on a very cold day broke the ice which covered a very large vessel of water and bathed in it; he escaped that attack and has not had another. The gentleman ascribes the cure entirely to the cold water.

I now proceed to the Second Part of my subject which is to point out the propensity of the Cold Bath during the Hot Stage of Fevers. - That a peculiar state of the skin exists in Fevers has been long known, & was noticed by Hoffmann, Cullen, and others, the remarking its ^{general} existence have not failed to invest it with malignant powers. But how under the influence of fancies, as warm, as various, have they mistaken effects for causes, and have ascribed to this state of the skin, the development, continuance & solution of fever. That such a state does exist no one will deny but that it is only a symptom or attendant will be admitted by the best speculative physicians of the present day. Discredited thus of the dignity it was, mayed in we will attack it as any other and instead of suffering no patient to languish under its indifference & operations we will consider it as susceptible of relief from the timely but judicious

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It has appeared to me that too little attention has been paid to the state of the surface during the hot stage, and that regarding it we will observe an agent which aggravates & protracts its violence. That the Cold Bath is calculated to remove this condition which consists in a secretion of the extreme vessels, and which is peculiarly in fever. that it is adopted to reduce the morbid heat which prevails, it is the design of the following remedy to prove. At this time my own inexperience prevents me from discriminating to what species of fever it is best adapted nor to suggest its modifications in the several varieties. but as a general rule Dr Currie states that it may with safety be employed when there is no chilliness present, when the heat is steadily above what is natural and when there is no sensible perspiration. Under these restrictions he says that it may be employed at any period of fever but its effects will be more salutary as it is employed ~~more~~ early.

Let us institute an inquiry into the origin of the term Fever. When the first improvers of our science noticed the phenomena of diseases they were struck with the prodigious

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increase of heat in some. Hippocrates who studied life & disease in the book of Nature, perceiving the increase of heat to be the most remarkable symptom, ascribed this for the cause and established his distinctions upon the different degrees of intensity of this heat. From its striking character & its pre-dominance it was natural to borrow from this the denomination & hence Fetus or Fervor to grow hot.

This being determined the problem was to discover the state of the system productive of this effect. At one time it was ascribed to the increased respiration and as animal heat is produced by the changes the air undergoes in the lungs by its new combinations this appeared plausible. But as it was observed that an animal when undergoing severe exertion breathed as rapidly without such an extraordinary increase being perceived it was evident that this alone could not afford a satisfactory explanation. The same suggestion with less propriety has been offered as regards the increased circulation & the same objection may with propriety be made. If you attend to the phenomena of fever we will perceive that together.

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with an increased respiration the skin presents changes now & however. That there is a considerable heat and dryness a-
sensation of a nature which cannot be misunderstood & appears as if it was parched and an absolutely impervious state of the
pores. Connected with this there is present great restlessness
Oppression about the precordia. anxiety, sighing, watching.

These symptoms are more or less connected with the sur-
face. as is proved by this circumstance that for their modera-
tion or removal the most effectual method is to restore the
function of secretion. Hence sweating appears the desideria-
tion in this stage, and hence its propriety that it is the
kind of solution nature employs to relieve the system from
the oppression it labours under.

Let us see Dr. Cunins process in alleviating this state of the
system. By the use of this application he says the heat
dispersed, diaphoresis was produced, the pulse moderated,
the mind became calm and collected & refreshing sleep
which before was prevented followed.

Hence it is by taking this function out of Nature's hands
that is by promoting artificially we effect instantaneously

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what her operations would have produced eventually.

I have said that this state restrained perspiration - when it exists it is unaccountable to what a degree the heat of the body increases.. but when in action it is the most powerful agent in regulating the temperature of the body. Thus it is that the husbandman feels himself invigorated and refreshed while pursuing his necessary occupations. Thus it is that the inhabitant of the torrid zone, feels himself protected from the influence of a meridian sun. and thus it is that the victim of fever perceives moments in which he may recruit the flame which had been tortured and oppressed. Recent experiments have convinced that an animal though exposed to heat elevated to the boiling point suffers no increase of its temperature provided that the secretion of perspiration continues.

In fever the action of the arterial system is often such as to be incompatible with secretion, & here the bath may by reducing it, be admirably adapted. This may be exemplified by other diseased states. In inflammation the excitement is sometimes

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great as to restrain that effusion which nature employs as a species of resolution and which nothing so directly induces as conscious exertion. In the state above alluded to it is common to employ diaphoretics but not with sufficient discrimination. The end is held in view but the nature of the means employed is not adverted to. All medicines are stimulants, differing not only in the degree but in the kind of action produced. If therefore we employ them we act upon the principle that he who administers cordials in inflammation -

We either carry the action so far that the sweat which breaks out is partial and not beneficial or we sink the powers of the system and then what ensues is too late to be advantageous.

How much more consistent first to employ the bath which by its operation diminishes heat and action as bleeding in inflammation and thus paves the way to recovery and health. or what is important to rational and consistent practice in the physician. Nature would have effected the same eventually and would have been much the superior of the two; but my object

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The reaction which I have mentioned as occurring after the bath will take place but then it will be salutary & beneficial. The heat and sti^clure are now removed. perspiration the moderator of the animal temperature has ensued this of course and the new action rather than exhausting tends to rouse & invigorate the patient -

But unfortunately we have much to contend with before this can be employed as fully as necessary. Prejudice in medicine like quackery in science renders us altho bold and presumptuous.

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